

**National Oceanography Centre, Southampton
Response to BERR Carbon Capture and Storage Consultation
September 2008**

The National Oceanography Centre, Southampton, (hereafter NOCS) welcomes the opportunity to respond to this consultation. This response is on behalf of our organisation, a joint NERC-University of Southampton Centre that specialises in marine and earth science, see www.noc.soton.ac.uk Staff were consulted by email requesting their views, and their responses are presented below. Based on their responses we have chosen to answer questions 1, 2, 4, 24, 25, 26 and 36.

Consultation Questions

Question 1: *We would welcome views on what more the Government might do to promote the development and deployment of CCS technologies in the UK, EU and globally.*

1.1 In the view of many of our scientists, the development and deployment of CCS technology on a global scale is essential for reducing the quantity and pace at which anthropogenic greenhouse gases are entering the environment. Our research supports the view that anthropogenic greenhouse gases are contributing to climate change, and are also causing acidification of the oceans.

1.2 The possible long term consequences of continued excessive anthropogenic CO₂ production include the destruction of coral reef ecosystems, damage to plankton production, sea level rise and increases in the magnitude and frequency of extreme weather events. Therefore we recommend that no new large coal-fuelled power stations should be permitted to operate in the UK unless they are equipped with CCS from the outset. (see *the NOCS contribution to the Ninth report from the Environmental Audit Committee: Carbon Capture and Storage: Session 2007-08: HS654*)

Question 2: *Do you agree that developers should have suitable space on site or adjacent to it to accommodate future carbon capture and processing plant?*

2.1 If this means developers of fossil-fuelled power stations, cement works, iron-ore smelters and other large industrial emitters of carbon dioxide then yes, space must be set aside for future retrofit of CCS plant as the technology becomes available.

Question 4: *Should developers be required to assess the feasibility of retrofitting carbon capture technology to their combustion plant?*

4.1 Yes, because coal-fuelled power stations are directly contributing to global climate change, and compared with the difficulties of reducing greenhouse gas output in the transport sector, CCS on existing power generation plant could provide a fast means of considerably reducing the UK's carbon footprint.

Question 24: *We would welcome views on our proposals for dealing with CO₂ storage projects involving EOR.*

24.1 Until the June 07 OSPAR amendments are ratified by 7 member states the interim use of EOR as a means to facilitate the early adoption of CCS would be welcome.

Question 25: *We would welcome your views on this model licensing and lease structure. Can you see any problems with our conceptual model? If so, how might we address such problems?*

25.1 The licensing structure proposed has a period of geological surveying of the proposed storage site to determine its suitability. However it does not have any suggestion within it that the general environment of the deep sea above the potential storage site should be surveyed. We believe that baseline pre-injection environmental data is required.

25.2 In the event of a failure of the store leading to the release of CO₂ to the surface through the capping material we would have no way of knowing whether the consequences of this were serious without baseline pre-injection data. This applies both to benthic organisms which have some biodiversity value and which may be sensitive to leakage and to the chemistry of the bottom waters.

25.3 In the event that leakage occurred and bottom waters became CO₂ rich the quantity of CO₂ stored would have declined, we would have contravened OSPAR and for these reasons there should be a mandatory environmental survey of the seabed and lower water column prior to licensing.

Question 26: *We would welcome views on how the perimeter of a store should be described in the case of a carbon dioxide store in an unconfined space such as an aquifer.*

26.1 Although there is considerable discussion of what to do if the CO₂ spreads beyond the limits of where it is licensed to be, this is exclusively beneath the seabed. There is no discussion of what could or should be done if the cap failed and stored CO₂ leaked into the deep waters.

Question 36: *We would appreciate views on the appropriate licensing authority for offshore carbon dioxide storage.*

36.1 We suggest that the proposed Marine Management Organisation to be established through the Marine Bill would be an appropriate licensing authority for offshore carbon dioxide storage.

This response prepared by Stephen Hall of the National Marine Coordination Office on behalf of the National Oceanography Centre, Southampton 18/9/08